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ABSTRACT

This report describes goals, results, and work-in-progress for each of the programs through which the Center is attempting to develop a scientific knowledge of how schools affect students and to use this information for the invention of better school practices and educational forms. The major programs are 1) school organization--to determine how much student participation in social and educational decisions influences learning, independence, and attitudes toward more training; 2) social accounts--to investigate how education affects eventual vocational attainment and how it results in different vocational outcomes for blacks and whites; 3) talents and competencies--to study the effects of educational experience on a wide range of human talents, competencies, and personal dispositions; 4) simulation games--to develop group games for use in creating more desirable classroom relationships between teacher and student; 5) careers and curricula--to develop a self-administered vocational guidance device to promote vocational development and to foster satisfying curricular decisions for high school, college, and adult populations; 6) language and communication--to identify interaction skills necessary for students' successful performance. Also included are bibliographies for each program, resumes of researchers, description of the Center's organizational structure, and a publications list. (JS)

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FOURTH ANNUAL REPORT

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INTRODUCTION

Like people, all schools are not the same. And just as different kinds of people affect us in different ways, different schools affect their students in different ways. The mission of the Johns Hopkins Center is to develop a scientific knowledge of the ways in which educational institutions affect their students and to use this knowledge to develop better school practices and organizational forms.

The Johns Hopkins Center differs from most educational research efforts in two ways. This Center is only secondarily concerned with traditional topics of instruction and learning such as curricular materials, teaching methods, or learning packages. Instead, we focus on the larger aspects of educational environments--how schools are organized, how school rules affect students, how schools of different social and racial composition affect students, how teachers affect students, and similar interactions of a student and his school. The Johns Hopkins Center also differs from most educational research organizations because the staff investigates a broad range of educational effects. Typically, most educational research is aimed at highly specific outcomes such as the improvement of memory, the mastery of arithmetic, and similar important but specific outcomes. This traditional focus on the obvious should not detract from other equally important, but rarely studied educational outcomes such as a student's vocational attainment, sense of competency, originality, or social responsibility.

So far, the acquisition of a knowledge and theoretical understanding of how schools influence their students has lead to the development of some practical ideas, methods, and products to improve the quality of education. To accelerate this process, Center programs continue to investigate how schools affect students and to use this information for the invention of practical ways to create desirable student behavior.

The five Center programs are organized to cope with one or both of these objectives:

The School Organization program is currently concerned with how the degree of student participation in social and educational decisions influences a student's learning, independence, and attitudes toward more training.

The Social Accounts program is learning how a student's education affects his eventual vocational attainment and how education results in a different vocational outcome for blacks and whites.

The Talents and Competencies program is studying the effects of educational experience on a wide range of human talents, competencies, and personal dispositions and is planning ways to change schools to develop a broader range of human talent. Academic talent is not enough!

The Simulation Games program has developed group games which can be used to create more desirable classroom relationships between teacher and student.

The Careers and Curricula program has come from a theory of career development and has developed a self-administered vocational guidance device to promote vocational development and to foster satisfying curricular decisions for high school, college, and adult populations.

The following organizational chart presents our current Center program and illustrates some of the ways in which programs with diverse names and activities interlock to strengthen one another and our main mission--how schools affect students and how to create an educational experience of higher quality.

PROGRAM INTEGRATION

Program		Contributes Ideas, Methods, Products, or Data to	Center Program or OE Target Area
1. School Organization	creates	knowledge of effects of students' participation on learning and responsibility	which Talents and Competencies use to design training programs.
		knowledge of effects on students of reward and competition systems, participation, and differentiation processes	which School Organization uses to design school programs.
		new organizational forms of schools for	OE target area: School Organization and Administration.
2. Social Accounts	learns	how part-time and full-time education affect adult attainment	which School Organization uses in designing school programs.
		relation of intellectual talents to adult attainment for	Talents and Competencies.
3. Simulation Games	develops	games for improving student-teacher relationships	which School Organization incorporates in school reorganizations.
		games as a major technique for understanding teacher influence;	School Organization uses that knowledge to plan better schools.
		career games to foster better vocational decisions	which Careers and Curricula uses to acquire practical and theoretical knowledge.
4. Talents and Competencies	develops	assessment techniques and scales for use in acquiring knowledge and in developing products in	Social Accounts, Careers and Curricula, and School Organization.
5. Careers and Curricula	develops	classification and career theory which	Social Accounts applies to work histories.
		self-administered guidance device for use in	Vocational Education, OE target area.
		theory for development of curricular clusters for use in	Vocational Education.

Program Activities and Accomplishments

School Organization

I. STAFF:

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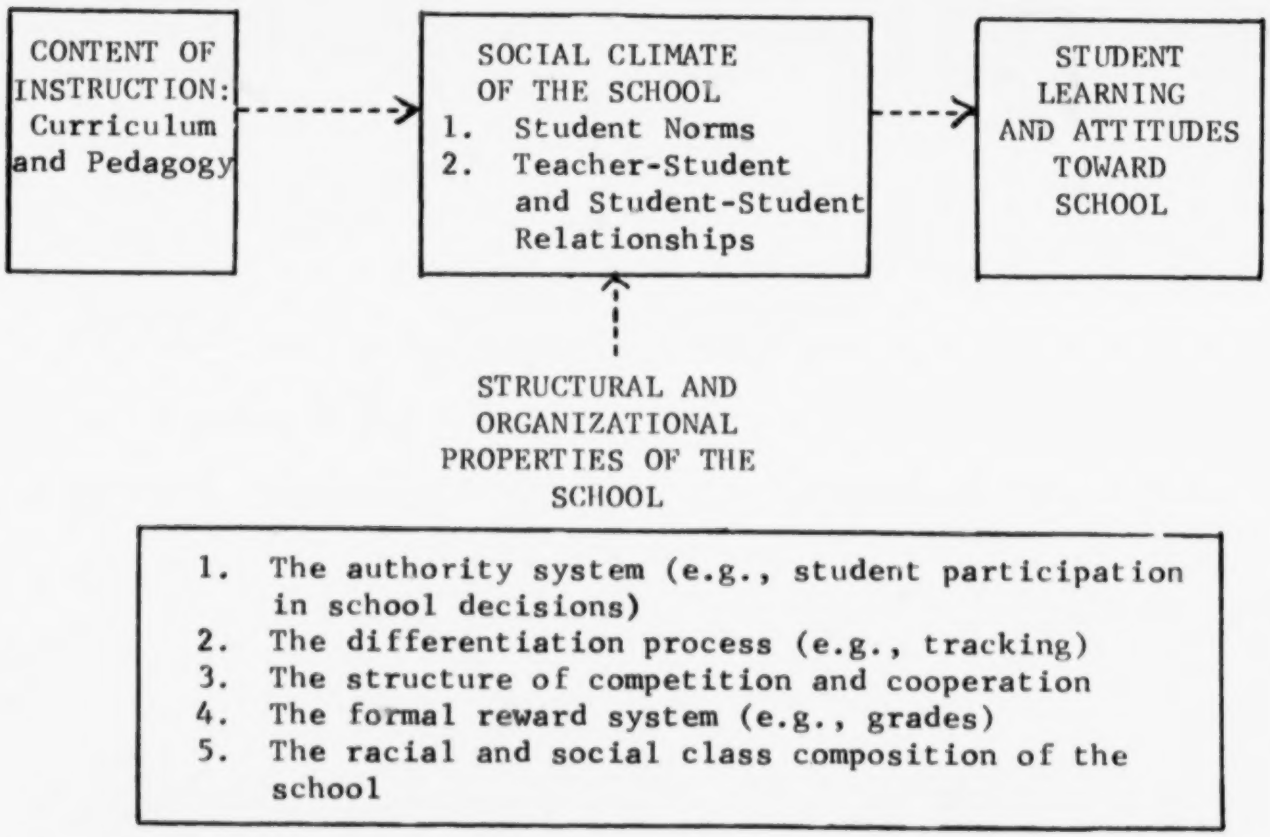
II. GOALS:

The objectives of this program are: (1) to study how organizational properties and structural features of schools are related to the social climate of the school and important educational outputs, and (2) to propose, institute, and evaluate the effects of specific structural and organizational characteristics and changes in schools.

The approach being followed in this Program is best illustrated by the figure below:


CONTENT OF INSTRUCTION: Curriculum and Pedagogy
SOCIAL CLIMATE OF THE SCHOOL
1. Student Norms
2. Teacher-Student and Student-Student Relationships
STUDENT LEARNING AND ATTITUDES TOWARD SCHOOL
STRUCTURAL AND ORGANIZATIONAL PROPERTIES OF THE SCHOOL
1. The authority system (e.g., student participation in school decisions)
2. The differentiation process (e.g., tracking)
3. The structure of competition and cooperation
4. The formal reward system (e.g., grades)
5. The racial and social class composition of the school

In this model, the social climate of the school constitutes the most important factor which determines whether a given instructional stimulus will result in student learning. The Coleman Report is the latest large-scale study to document this process. But there are two problems with our current understanding of this process which must be solved before school practice can more effectively use the school's social climate to improve student learning. First, we need to know more about the ways in which the two components of the school social climate -- the student norms and the teacher student relationships -- intervene in the learning process. Second, we need to find ways of influencing the school's social climate in order that it will more effectively support the learning goals of the school. As indicated in the above figure, some indirect evidence suggests that certain structural and organizational properties of schools are strongly related to the social climate, and that the way to influence the social climate is to devise new organizational forms for schools.

III. WORK IN PROGRESS

The projects in this Program involve research and development concerning both of the following problems: how the school social climate intervenes in the learning process and how organizational properties of the school affect its social climate. This Program was started at the Center in January, 1970, and builds on the earlier projects conducted by Center staff.

The School Social Climate

Two projects are underway to examine each component of the school social climate.

1. Student normative environment. Edward McDill and his associates have been working for several years to develop ways of measuring the normative environments of high schools, and to gain knowledge of the mechanisms through which these environments develop and influence student learning. (McDill, et. al. 1967, 1969; McDill, Coleman, 1965) This work uses survey and test data collected from a national sample of twenty high schools and beginning in September, 1970, will continue as a project under this Center Program.

2. Teacher-student and student-student relationships. Doris Entwisle and Murray Webster have chosen to investigate teacher-student relationships within the context of "expectation theory" -- a theory of how expectations of particular individuals can influence the attitudes and behavior of other individuals in a group. They are proceeding with their research on expectation theory in two settings, the laboratory and the classroom.

Laboratory research this year has produced results from two experiments. The first, Status Characteristics of Evaluators, was designed to clarify the conceptualization of what is sometimes called a Significant Other; that is, an individual whose performance evaluation will be accepted by others and used by them to form conceptions of their own and each other's ability. (Webster, 1970) This study extended the earlier theory by showing that, in the absence of information about the evaluator's ability, knowledge of the state of a diffuse status characteristic possessed by him would be used to

determine acceptance of his evaluation. The second laboratory experiment this year was concerned with conditions surrounding change of existing expectations. The experiment had three conditions. First, an earlier finding was replicated, that once subjects held performance expectations for themselves and others, these expectations were extremely resistant to change, even in the face of considerable amounts of contradictory information. Second, it was demonstrated that appropriate interaction conditions including performance evaluations can be created to produce change in existing expectations. Third, the method for producing change in expectations was applied to a set of subjects who had not yet formed performance expectations. The next series of experiments will concern intervention techniques and status characteristics explicitly directed at racial differences in expectation patterns.

Using the theoretical concepts developed in the laboratory, the research was extended to practical classroom situations of interest to teachers and other educators. Work in the classroom concerned first the development of a story-telling task, resembling usual school tasks, in which children's expectations could be increased. The dependent variable is rate of volunteering. Results of the initial classroom work have shown some differences by grade, sex, and race of subject and experimenter in the success of manipulating student expectations which will be followed through in the next phase of classroom experiments. (Entwisle, Webster, 1970)

In addition, new studies will deal directly with students' expectations for one another. One aspect of this work deserves

particular emphasis: all the classroom experiments are designed in terms of interventions to change expectations. This means that as expectations are studied, simultaneously techniques for increasing student expectations are also being studied.

New Organizational Forms

As indicated in the figure above, five different structural and organizational properties of schools are seen as particularly important for influencing the social climate of the school and student learning. Center projects have been underway concerning three of these properties, and will begin in the fall of 1970 to investigate the remaining two.

1. Student participation in decision-making processes.

Many high schools have recently experienced strong student complaints about the authority system and demands for more participation in a variety of school decisions and procedures. As yet, however, there have been no systematic attempts to learn what effects might be expected from different authority and decision-making systems in schools on the functioning of the organization, on the character of the school social climate, and on important outputs of the schools.

During the past year, the Center has completed the field work and preliminary analyses of a study designed to extend our understanding in this area. Extensive survey information was collected from the staff and from eleventh and twelfth grade students in fourteen large urban high schools. This study first examines the effects of different procedures for making and enforcing decisions about the rules for political and social behavior in the school. In

many schools, students are presently most concerned about political rules such as those governing assembly programs, distributing political leaflets, and holding political meetings and rallies. The study also considers the effects of different procedures for involving students in the academic affairs of the school: the course offerings, the assignment of students to programs and classes, the selection of teachers, and the grading procedures. These are academic issues which have not yet been the source of much active student unrest in the school, but differences in student participation in these areas are more strongly related to feelings of alienation than participation in the making of non-academic school rules.

The analyses of the results from this study will be reported in the fall of 1970.

2. The differentiation process. A pervasive organizational feature of American schools is the practice of tracking or ability grouping of students. Following this practice, classroom and course assignments are made based on the evidence of the student's past performance. A recent survey of research and practices in ability grouping lists 26 different grouping practices found within the U.S. alone.

There is a vast literature on ability grouping and its effects on students. The comprehensive surveys of this maze of research come to the common conclusion that no coherent pattern of results emerges from the existing research. It is evident that before any further extensive research is performed in the problem area of methods for formally differentiating students into instructional groups, a more adequate conceptualization of the variables involved is needed so that specific aspects of the differentiation process can be isolated for their influence on students.

During the past year, Aage B. Sørensen has examined this literature and has worked out a new conceptualization of the variables involved to guide future empirical work. This paper has been published as a Center Report and will be published as an article in Sociology of Education. (Sørensen, 1969)

3. The racial and social class composition of the school. Since the Center's first year we have studied how the racial and social class composition of a school and classroom affects students. (McPartland and York, 1967, McPartland, 1968) This work, based in part on the data collected in 1965 for the Coleman Report, has proved to be a major source of information to national policy-makers concerned with school desegregation programs. In the past year, publications resulting from Center research have been concerned with how conditions within desegregated schools may modify the influence of the racial and social class composition of an individual's fellow students. (McPartland, 1969, 1970) Based on this research, Program staff next intend to work with school districts within a metropolitan area to devise educational experiences which are politically practical and incorporate those aspects of racial and social class composition which advance student development.

4. The structure of competition and cooperation. Presently, American schools structure most academic tasks competitively; that is, each student is in competition with his fellow students in working for grades and other rewards. We need to learn more about the potential of structuring tasks differently so there are rewards for cooperation among students and incentives for group rather than individual endeavors.

Coleman (1959) and others have argued that an important reason why non-academic activities are most highly valued by students is the structure of competition surrounding the different activities. For academic matters, there is competition between students: if one student works harder to achieve academically, this means that other students will have to match his extra effort to maintain their standing. As a consequence, social pressure develops to inhibit students from working too hard on their studies. On the other hand, in most athletic contests there is competition between teams or groups. If an individual on the team excels, the entire group is rewarded. Consequently, social pressure will not develop in the same way to dampen an individual's effort, but in fact encourages and rewards it. Urie Bronfenbrenner (1968) has documented the many ways that schools in the Soviet Union structure competition so that group incentives result in the academic motivation of individual members of the group.

This organizational property may be one of the most important ways of influencing the student norms of the school. The Center does not now have research to investigate this possiblity, but a project is planned under this Program in the next year to pursue these ideas.

5. Formal reward systems. Presently, grades and report cards are also a pervasive feature of most schools, and usually are managed in similar ways. Variations in the traditional ways of manipulating the formal rewards are possible, but research evidence is scanty on the impact such variations might have. Recently, some ghetto schools have been using formal rewards other than grades to attach to student

performance in school. Careful evaluations have not yet been conducted of the effectiveness of non-grade rewards for motivating students' academic pursuits.

But there are also several variations in the ways formal grades could be calculated and assigned which could be investigated for their effects on students. Instead of assigning grades according to the relative ranking of an individual among just those students in his class, marks could be administered in terms of a larger reference group of students (e.g., all others from the same social background, others in the system, others in the same region). Alternatively, grades could be assigned on the basis of an individual's own growth rate so that a student would be compared to his own past performance. Grades could be weighted by the difficulty of the course, so that students would receive extra rewards for doing well in a course with a "higher degree of difficulty." The option that a student may choose one course in which he only receives a "pass" or "fail" grade was instituted in some colleges to encourage greater variety in students' courses. This also has not been carefully studied for its impact in colleges or for its implications in high schools.

Another aspect of the formal grading system in schools which might be experimented with involves the evaluator. Presently, the student's own teacher fills this role in schools. But, other officials could perform this function, as is done for example with the New York State Regents Exams.

In each of these areas -- alternative formal rewards, different grading systems and the evaluator's role -- there exist possibilities to influence the student climate which have not been carefully studied. A new project under this Program is planned in this area.

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James McPartland (Ph.D., 1968, Johns Hopkins) is Assistant Professor of Social Relations at Johns Hopkins and Assistant Director of this Center. He is a co-author of two governmental reports on education, Equality of Educational Opportunity and Racial Isolation in the Public Schools, and has prepared several studies on the effects of desegregation on students. He is currently conducting a project with Dr. McDill on "student participation in the decision-making processes of secondary schools."

Edward L. McDill (Ph.D., 1958, Vanderbilt) is Professor and Chairman of the Social Relations Department at Johns Hopkins. Dr. McDill has published widely in the field of sociology of education, and served as Director of the Johns Hopkins Research and Development Center during its first three years of existence. Dr. McDill is currently studying the sources and influence of different social climates of high schools.

David DeVries (Ph.D., 1970, University of Illinois), is Assistant Professor of Social Relations at Johns Hopkins. Dr. DeVries is a social-psychologist who has conducted research on institutional effects.

Doris Entwisle (Ph.D., 1960, Johns Hopkins) is Associate Professor of Social Relations and Electrical Engineering. She has published books and articles on aspects of the childhood socialization process, language development, cognitive styles, and research methodology.

James J. Fennessey (Ph.D., 1970, Johns Hopkins) is Assistant Professor of Social Relations at Johns Hopkins. He is a specialist in research design and methodology, and has prepared reports on the faculty peer group in elementary schools.

Murray Webster (Ph.D., 1968, Stanford) is Assistant Professor of Social Relations. He is a specialist in laboratory experimentation to develop social-psychological theories, and is working with Dr. Entwisle on extending expectation theory and applying this theory to classroom situations.

Social Accounts

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II. GOALS:

Although almost all observers of the contemporary scene agree that educational attainment is a critical factor in the social mobility of both individuals and groups, the degree to which it is important and the processes by which education becomes translated into the achievement of economic and social well-being still remain open questions. To provide more definitive answers about the role of educational attainment requires research which relates education to activities in middle adulthood at least, and research which can also assess the relative importance of educational vis à vis other factors known to be of importance; e.g., the social status of the individual's parental family.

To construct social policy concerning education properly, information about the role of educational attainment in social mobility is required. The long-range goal of this program is to provide reliable information of this sort, paying special attention to the problems of the largest disadvantaged social group in America--Negroes. Although the social standing of an individual in our society is more than his

occupation and the income he derives from it, there can be little doubt that occupation is at the center of social status. Hence the attention of this program centers upon the factors in life experiences which condition the attainment of occupational status in middle adulthood. Occupational status is indexed by two characteristics: the prestige standings of occupation (as derived from ratings given to occupations by representative samples of Americans) and the income derived from occupations.

The overall conceptual scheme underlying the research is that of "social accounts." The basic idea of social accounts is that it is possible and useful to consider an individual as having a set of <u>assets</u> or <u>deficits</u> in those characteristics which are critical to occupational attainment. For example, a low level of educational attainment may be regarded as a deficit and a high level as an asset. A given individual may be viewed as having a sort of "portfolio" of assets or deficits in the major characteristics which condition occupational attainment. Similarly, an identifiable social group, e.g., Negroes may be characterized by average levels of educational attainment, family background, etc., which constitute the assets or deficits for that group and which condition that group's ability to attain high average levels of occupational attainment.

Static characteristics of the sort discussed above are not the only factors in occupational attainment, however. We must also consider the <u>processes</u> which link together the characteristics and occupational at-

tainment. For example, our research already indicates that a given increment in educational attainment for blacks counts less in occupational attainment than for whites.

Thus social accounts for individuals and groups consist of profiles of characteristics and processes, which constitute the assets or deficits of those individuals and groups seen from the viewpoint of their potential for occupational and income attainment.

To identify those states and processes requires the longitudinal study of individual life histories. This program has collected retrospective life history material from a national sample of men, aged 30-39 years in 1968, and a national sample of black men of the same age. A sampling strategy was designed to make reliable comparisons between whites and blacks and make possible the same analytical approaches to the two racial groups. Analysis of the data centers around the differences and similarities between blacks and nonblacks in a number of different life areas.

For the program to attain its goal of suggesting policies which would entail a strategy of purposive social change, it is also necessary to develop a system to monitor how well stategies of social intervention are succeeding or failing. Hence we look forward to planning periodic "social accounts" studies designed to provide continuous measurements of ongoing social changes. A crucial aspect of the Program, at present, is to identify characteristics which would be amenable to continuous measurement and which have a role in the process of social mobility or occupational achievement.

So far, the Program has only considered transformation processes within the life cycle of individuals. New research will take into account other processes which are critical in determining occupational position:

(1) Institutional processes. Especially important here are those aspects of educational institutions which affect the attainment of individuals. Current research in School Organization will be used by the Social Accounts Program to assess institutional processes and to plan future research. Additional institutional processes which will be investigated include the hiring practices of employers and the socialization practices of families.

(2) Social system processes. Of special interest here are sociometric nets which determine the allocation of jobs and residential segregation which determines access and knowledge of occupational opportunities. In addition, attention will be paid to political processes which can modify institutional practices--for example, legislation concerning school integration or hiring practices.

III. RESULTS:

Results from the Social Accounts program can be divided into three types of products: theoretical and conceptual formulations which will be incorporated into future research; methodological and technical development which, although developed specifically for this program, have implications for other researchers and are applicable to other

types of problems and data; and substantive research findings which provide ideas and findings for a system of "social accounts" and which have policy implications. Summaries of our work during the past year in each of these categories are given below:

A. Theoretical and Conceptual Formulation

Some significant progress has been made towards adding social system variables into the social accounts scheme. A major theoretical paper has been completed (Rossi, 1970, forthcoming) which is addressed to the problem of the contributions residential communities can make to the well-being of their residences. The importance of the local community as a factor in social mobility has been recognized both in published literature and in the community framework given to current public policies. Community Actions Programs, Model Cities, the drives for school decentralization, and the like are all predicated on the assumption that the local community can be viewed as having assets and deficits which significantly affect the life chances of residents.

The paper examines previous literature on residential communities, develops a set of concepts and suggests operational forms for such concepts. A workable definition for the concept of community is developed along with other measures of social cohesion, solidarity and levels of satisfaction with various aspects of community life. The conceptual scheme presented provides a way of designing research which would sort out the impact of community social organization

on residents from the simple aggregative effects of characteristics of residents. The conceptual scheme also leads to a set of social psychological indicators designed to measure important aspects of the quality of life as affected by residential location.

B. Methodological and Technical Developments

As reported in the Third Annual Report, the program staff developed a special way to collect retrospective life history material. The approach was used in the collection of the data base currently being analyzed. In addition, an efficient system for the computer storage and data access or retrieval has been developed. Both field methods and computer processing information have been made available to a number of other studies. (See Blum, Karweit, and Sørensen, 1969, for a description of the field methods and early aspects of the computer processing system.)

An analysis comparing the life history survey materials with information collected in other ways has been completed (Blum, 1970 [forthcoming]). It should be noted that recall of most information does appear reliable on the basis of tests against comparable data collected using different techniques.

Given the nature of the life history material, appropriate analytic methods are Program prerequisites. Several methods for the analysis of the migration history portion of the study (Coleman, Blum, and Berry, 1970) and a method for the analysis of the probability of making either an occupational transition or a residential transition (Sørensen, 1970) have been developed.

Results from this aspect of the program have been made available to other researchers, either in the form of presentation at conferences, professional meetings or through the ERIC system.

C. Substantive Findings

An analysis of the longitudinal effects of education has been completed (Blum and Coleman, 1970). The investigation consists primarily of understanding the degree to which members of the two groups transform educational attainment into occupational returns in the form of status and income. We find first that the income and status levels <u>attained</u> by blacks are considerably lower than those for nonblacks in both income and status. These lower levels are principally a result of lower growth rates, rather than substantially lower starting points. For income growth, there is a relatively small continuous effect of education on income, slightly smaller for blacks than for nonblacks. However, for blacks the positive effects of education are eroded by unmeasured factors which make high incomes less stable than for nonblacks, and lead them to regress more readily back toward the mean. The overall effect is an increase over time in nonblack income relative to blacks and a reduction in the overlap of the two distributions.

The process underlying growth of occupational status is somewhat different. First, the continuing effects of educational levels are somewhat larger; again, these effects are slightly greater for nonblacks than for blacks. Occupational status of blacks is found more

stable than that of nonblacks. The greater effect of education and the greater regression effect seem to balance each other, with the result that the black and nonblack distribution of occupational status remain in the same relative position.

An analysis of the occupational status changes for blacks and nonblacks during the first ten years of occupational experience has been completed (Coleman, Blum, and Sørensen, 1970). The analysis suggests that educational level far outweighs other characteristics of the respondent in determining the occupational status of his first job. The value of education, in terms of the status it brings, is about twice as great for nonblacks as for blacks. Differences, however, are not only caused by the different levels of education and other characteristics possessed by the two groups, but the analysis shows that about 58% of the difference between blacks and nonblacks can be attributed to different levels of resources and the remaining 42% to the differences in the efficacy of different resources in obtaining an occupational status of a given level. Analysis of occupational status at the end of ten years indicates that of the intervening experiences examined, experiences in the educational (primarily part-time education and on-the-job training) sphere are most important in increasing occupational status and equally important for both groups. Other experiences examined include events in the marital, residential, and occupational spheres.

An investigation of the determinants of migration, based on an analytic approach developed within the program (Sørensen, 1970) is completed (Blum, Berry and Sørensen, 1970). In investigating the decision to move, a distinction is made between resources possessed by an individual and the returns he obtains, in the forms of occupational status and income, by being a resident of a specific location. We find that individuals with greater personal resources, specifically education, are more likely to move. At the same time, those individuals who were incumbents of occupations at a given location which brought low returns (i.e., low occupational status and income) were more likely to move. In considering the actual benefits which accrue to individuals when they make a geographical move, preliminary results indicate that it is the occupational transition and not the residential transition which is most important. In other words, we found a weak relationship between migration and occupational achievement.

IV. WORK IN PROGRESS

1. An analysis of the economic return to education is nearing completion (Owen, 1970 [forthcoming]). This applies the approach known as "human capital" to the longitudinal data so that this economic study complements the research described earlier.

John Owen is employing the longitudinal data to obtain estimates of the economic returns due to education. More accurate estimates can be obtained with the Social Accounts data because of the wealth of informa-

tion on factors other than education that contribute to financial success. These factors have been held constant in a number of regressions, and a statistically significant effect of education on income obtained. (Preliminary results are being subject to further tests).

Estimates are also being obtained of the way in which returns to education are affected by local labor market conditions, by the social origins of the respondents, and by his intellectual ability (as measured on a verbal ability test). In this study, education is measured both by the years of schooling of the respondents and by the level of educational expenditure per pupil in the state in which he received this schooling.

2. Several other studies, based on the data collected by this program, will be completed within the next year. The first of these (Ornstein and Rossi, 1970) is an analysis of the determinants and consequences of entry into the labor force for blacks and nonblacks. Ornstein takes as his starting point the moment in the life cycle of an individual at which he makes a serious commitment to work beyond taking one year off from school and examines the first few years of labor force experience.

The second study (Sørensen, 1971), is concerned with the occupational careers of individuals throughout the portion of the life cycle covered by the survey. The aim is to examine how occupational transitions influence careers. The analysis includes the consideration of different occupational groups as well as occupational experience within different industries.

3. In view of the interest expressed by other researchers, a more complete manual for the collection and processing of life history material is being prepared. Whereas a previous publication (Blum, et al., 1969) was primarily focused on the Hopkins study, the present work will be broader in scope in that it will also discuss other data bases where our developments are applicable.

4. Apart from the special and intensive investigations that are being carried out on the life history material, the staff has begun to work on an overall report. The emphasis here is a cohort perspective showing changes that occur in different realms of life to a particular cohort. The primary purpose is to describe what happens over time for blacks and nonblacks in the educational, occupational, family and residential spheres. The secondary purpose is to answer analytic questions about why these patterns are as observed. Whenever possible, cross-sectional data from the lives of other cohorts (and from other sources) will be used in this report. In completing this report, we hope to illustrate the way in which "social accounting" can be conducted using cohort information. In other words, this effort can be regarded as a prototype of a "system of social accounts."

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RESUMES

Peter H. Rossi (Ph.D., 1951, Columbia) is Professor of Social Relations at Johns Hopkins. He has authored "The Education of Catholic Americans" (With Andrew M. Greeley) and "The New Media and Education" (with Bruce Biddle) as well as numerous articles in the fields of community research, educational institutions, and research methodology. His primary research interests include the sociology of local communities and the sociology of politics.

James S. Coleman (Ph.D., 1954, Columbia) is Professor of Social Relations at Johns Hopkins. He is the senior author of Equality of Educational Opportunity, An Introduction to Mathematical Sociology, and The Adolescent Society, as well as numerous articles on education, mathematical models and others topics in the behavioral science areas. His primary research interests include the development of educational games, the development of systems of social accounts, and the devising of mathematical models applicable to social science phenomena.

Zahava D. Blum (Ph.D., 1970, University of Chicago) is Co-Director of the Social Accounts Program and a part-time Assistant Professor in the Department of Social Relations. Since her arrival two years ago, she has authored reports and articles based on the analysis of the data collected for the Social Accounts program. Her special interests are social change and stratification, and methods of survey research.

TALENTS AND COMPETENCIES

I. STAFF:

Ellen Greenberger, Program Director
Robert Hogan, Program Associate
John L. Holland, Program Associate
Julian Stanley, Program Associate
Jeanne O'Connor, Research Assistant
Annemette Sørensen, Research Assistant

II. GOALS:

This Program is concerned with the problem of establishing new criteria for assessing the effectiveness of educational institutions and new targets for educational research. The chief aim of our schools, especially below the college level, and the chief interest of educational researchers have been respectively to impart and to measure the acquisition of knowledge and skills. This emphasis has obscured two important facts. First, research has shown that there are many kinds of human talents and accomplishments which are relatively independent of getting good grades or high test scores (measures of the acquisition of knowledge or skills), but which are associated with outstanding accomplishment in science, art, music, writing, and the exercise of leadership and other interpersonal skills. Second, a number of studies strongly suggest that grades in college bear little or no

relationship to any measure of adult accomplishment. Both of these considerations suggest that many of the kinds of competencies needed and valued by society are outside of the usual academic training and reward structure of the schools.

Program III attempts to identify and measure certain intrapersonal and interpersonal dispositions (cognitive and affective characteristics) which can be regarded as valuable in their own right, which can be expected to predict important achievement of various kinds, and which can be promoted by our educational institutions.

More specifically, the goals of the Program are to:

1. Conceptualize and measure curiosity, originality, flexible problem-solving strategies, openness to change, persistence, initiative, responsibility, positive attitude towards learning, empathy, communication effectiveness, and societal identification.

2. Relate these dispositions or talents to age-appropriate measures of achievement such as academic performance, vocational competence, creation of novel products and ideas, and leadership.

3. Examine structural variations in schools and in family background and child-rearing practices associated with differences in the amount and kind of talent found.

4. Devise training procedures and school and job reorganizations to foster the development of dispositions and talents discovered to be most strongly related to important achievement, both academic and nonacademic.

Table 1 displays the research strategy for Program III. Each of the three columns represents a major research area, to be investigated at four age levels.

III. RESULTS:

1. We have devised three measures of curiosity. These measures have shown the predicted positive association between curiosity and good grades at the elementary school level. (Greenberger, 1969; Hogan and Greenberger, 1969; Greenberger, forthcoming.)

2. We have devised a preliminary measure of flexible problem-solving strategies. The ability to approach novel problems from several points of view is associated with good grades at the elementary school level (Greenberger, O'Connor, Sørensen, 1969). Furthermore a study dealing with middle-class children in grades 1 through 3 has demonstrated a link between a flexible approach to novel problems and curiosity (Greengerber, O'Connor, and Sørensen, 1969).

3. Reviews of the research of colleagues (Campbell, Beers, Coldiron, and Hertzog, 1968) have shown that responsibility is highly correlated with achievement test scores at both the elementary and high school levels.

4. Reviews of the research of colleagues (ibid) demonstrate that a positive attitude towards continued learning is positively associated with achievement test scores at both the elementary and high school levels.

TALENTS AND COMPETENCIES

	PERSONAL DISPOSITIONS AND OUTCOMES		ENVIRONMENTAL INFLUENCES		INTERVENTIONS AND PRODUCTS
	Personal Dispositions →	Outcomes	Characteristics →	Impact on	
GRADE SCHOOL (Greenberger)	Curiosity Flexible problem-solving strategies Originality Acceptance of change Persistence Initiative Responsibility Positive attitude toward continued learning Empathy Communication effectiveness Societal identification	Grades Achievement test scores Nonacademic accomplishments; e.g., leadership	Census of Environmental Rewards to learn how school and family environments promote or hinder the development of talents and competencies	Grades Nonacademic Achievement Selected personal dispositions and outcomes	Ideas for School Organization Special training programs for student development of full range of competencies and talents
	Personal Dispositions →	Outcomes	Characteristics →	Impact on	
HIGH SCHOOL (Greenberger)	Same as above I.Q. Elementary School grades	Grades Achievement test scores Nonacademic accomplishments; e.g., leadership, creativity, job performance	Census of Environmental Rewards	Same as above	Ideas for School Organization Vocational experience
	Personal Dispositions →	Outcomes	Characteristics →	Impact on	
COLLEGE (Hogan)	Same as above High School grades	Grades Nonacademic achievements, e.g., leadership, creativity, job performance	Census of Environmental Rewards	Same as above	Ideas for School Organization Redesigning teaching activities Ideas for Vocational Experience and education
	Personal Dispositions →	Outcomes	Characteristics →	Impact on	
ADULT (Holland and Stanley)	Same as above High School or College Grades	Vocational Achievement; e.g., NORC Prestige Scale Nonvocational achievement; e.g., leadership, creativity, social and political participation	Census of Environmental Rewards	Vocational Achievement Vocational Status Vocational Satisfaction	Ideas for job redesign, social accounting studies, vocational education

5. Empathy has been found to relate to the ability to communicate effectively with others (Hogan and Henley, forthcoming).

6. Research under the former Program III has drawn to a close during the year with the publication of these reports: Entiwsle, 1970; Entwisle and Greenberger, 1970a, 1970b, 1970c, 1970d; and Greenberger and Sørensen, 1969.

III. WORK IN PROGRESS:

The initial work of this Program is directed toward developing and improving scales to measure the variables enumerated in column 1 of Table 1. It is our intent to develop definitions and measures of variables with maximum application across all age levels. Consequently, any "measure" or scale will be written for elementary, high school, and adult respondents.

Some preliminary work is underway which falls under column 2. Research pertaining to the final column is not yet feasible.

The following sections are intended to clarify the present work of the Program.

A. Elementary and High School studies

Work on the measurement of selected cognitive-affective dispositions and their relation to various forms of achievement has been in progress at the elementary and high school levels since late Spring. Research at these age levels is being conducted in collaboration with Pennsylvania's Educational Quality Assessment project (EQA), a large-scale, long-term investigation sponsored by that state's Department of Education.

Program III is currently using EQA data on a stratified random sample of 5th and 11th grade children to explore two problem areas: (1) the relations among curiosity, responsibility, creativity, and academic achievement; and (2) the relation of family and school

variables such as SES of student, size of school, racial and socioeconomic composition of student body, and average level of teacher experience to the cognitive and achievement variables just cited.

Arrangements have been made to incorporate into new waves of EQA testing this Fall and thereafter scales now being developed by Program III to assess other variables mentioned in the first two columns of Table 1.[1] It is planned that the samples will consist of youngsters at grades 3, 5, 7, 9, and 11.

B. College studies

Currently, work is in progress to adapt and develop scales for measuring the variables listed in column 1 of Table 1. Studies at this age level will begin in the Fall.

C. A special sample of creative persons

Program III is obtaining data on high school scientific award winners and a control group of non-winners. We shall make use of this data in seventeen ways that are consistent with the overall aims of the Program.

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[1] Pilot studies have been conducted this summer on scales for empathy, curiosity, and openness to change. New procedures for assessing leadership capacity and creativity are on the drawing boards.

In addition to completion of the goals discussed in the opening section of this document, the Program foresees three other major outputs. One is the capacity to demonstrate continuities and discontinuities in the kind of personal dispositions or talents which are related to age-appropriate forms of achievement. The second is the collection of unique data on the same set of personal dispositions over different points in the span of development. The third is the production of an assessment package that meets stringent psychometric criteria and is economical to administer.

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RESUMES

Ellen Greenberger (Ph.D., 1961, Radcliffe) is Research Associate in Social Relations at Johns Hopkins. She has published research on the topics of curiosity, achievement motivation and cognitive processes. Her primary interest is in cognitive and affective development.

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John L. Holland (See Careers and Curriculum resumes.)

Julian C. Stanley (Ed.D., Harvard) is Professor of Education and Psychology at Johns Hopkins. Dr. Stanley is the author or coauthor of five books on measurement, statistics, and research design and approximately 200 journal articles in those areas. He served (1961-63) as a member of the Research Advisory Council of the U.S. Office of Education. He is a past president of the American Educational Research Association, the Division of Educational Psychology of the American Psychological Association, and the National Council on Measurement in Education. His primary research interests include the theory and application of mental test theory, the design of educational experiments, and higher education of children of the poor.

Simulation Games

I. STAFF:

Michael Inbar, Program Director
James S. Coleman, Program Associate
Keith Edwards, Program Associate
Steven Kidder, Program Associate
Samuel Livingston, Program Associate
Clarice Stoll, Program Associate

II. GOALS:

The basic premise of this program is that an increase in intrinsic interest in certain topics, greater student motivation for learning, and greater acquisition of information and ideas can be had by modifying the reward structure of the classroom. One device for modifying this reward structure is academic games. Because the setting takes on the form of a game, the rewards are inherent in the activity itself rather than dependent on an authority figure. The teacher can therefore assume the role of a coach rather than of a judge. Academic games mirror some social process or aspect of social interaction. Because of their nature they lead to a more thorough student appreciation of the area. Indeed, students will have learned, through experience and active participation the simulated environment, and will be motivated to study further the area reflected in the game, as one is induced to perfect his skills in the similarly structured environment of sports.

The major purpose of this program is to discover <u>what games teach best</u> and <u>under what circumstances they are most effective</u>. Through research, there are implications that many previously unsuccessful students in conventional classroom settings can learn in game settings.

This program is geared toward measuring the extent to which academic games enhance the learning process in comparison with conventional teaching methods. For example, games are probably better in teaching social processes. Games seem to contribute toward imparting decision-making skills. There may also be important classroom organization changes, because games shift the teacher's role from one of maintaining control and evaluation to one of participating in informal interaction, coaching, and discussion.

III. RESULTS AND WORK IN PROGRESS:

The method of approaching games in this project has three phases:

A. Research: evaluation of classroom games.

B. Research: analysis of natural games.

C. Dissemination of games and information.

A. Games in the Classroom

One of the major goals of the Simulation Games program is to determine the special advantages and limitations of simulation games as a teaching technique. In 1969-70, the Center published reports of four research studies directed toward that goal. Anderson (Report No. 67), in a study using the Consumer game, found that the game taught factual information as well as a conventional unit of equal length designed to teach the same material. At the same time, the students who played the game outperformed the others on a task involving comparison of alternative credit-purchase plans. This

task was itself a simulated situation, designed by Anderson to provide a behavioral measure of student learning.

Cohen (Report No. 65), in another study using the Consumer game, found that the game produced measurable factual learning on three items of information, and in addition, reduced absences by 15% in a group of students with low motivation and high absence rates.

Livingston (Report No. 63), in a study using the Ghetto game, found that the game produced significant change in the attitudes of high school seniors toward the urban poor; the students' attitudes were more favorable toward the poor after the game than before. He also found a small but significant effect of the teacher on the amount of attitude change.

Livingston (Report No. 64), in a series of three experiments using the Trade and Develop game, found that the game did not improve students' learning of related factual material from a textbook.

Our greatest problem in attempting to evaluate the effectiveness of games is to design suitable measuring instruments. The special advantages of teaching with simulation games are not likely to be completely revealed by objective tests of factual information. Therefore we are designing other kinds of evaluation instruments. Two of them were mentioned previously in the descriptions of the studies by Anderson (Report No. 67) and Livingston (Report No. 63); others include tests requiring the students to make inferences from available information on the basis of principles the games are intended to teach.

B. Natural Games and Socialization

The aim of this project is to establish the relationship between children's game experience outside of the classroom and the expression of personal traits or social skills. A central question addressed is: what specific effects can be expected from playing natural games with various social organization or structure? Answering such a question should have helpful implications for the special uses of games in general and simulation games in particular, in the classroom. To achieve this end a typology of games that categorizes games by their structural characteristics will be attempted. Because it will be based on Guttman's (1957) facet analysis, the typology should have an internal logic which will provide a rationale for developing both theoretical propositions and policy formulations.

Three main activities were carried out during the first quarter of the fiscal year 1969. First, the pre-test (collected, coded, and punched during the previous year) was analyzed in a preliminary fashion. The immediate objective was to determine the degree to which the questionnaires and tests used in the pretest (sixteen instruments in all) were both valid and discriminating. The results of this work led to the modified instruments used in the main phase of the study.

Second, the sample for the study was prepared in both the methodological and administrative sense. Methodologically speaking, a representative sample of schools was drawn. Administratively speaking, contacts were established at all levels (i.e., at the school level, at the regional level, and at the national level); negotiations were

then carried out with the authorities at all these levels, leading to the required clearances. Third, a special field staff was hired for the field work and was carefully trained on the basis of the experience gained in the pre-test. The second quarter was entirely devoted to the collection of the data, and preparing it for analysis.

The project is now ready to address its major goals and address the following questions: How do games contribute to or inhibit the development of valued social skills and attitudes? What are the underlying characteristics of games with similar outcomes? How can games best be designed for the achievement of specific outcomes? It is hoped that the answers to these questions will enlighten our understanding of the mechanisms through which games incur changes in individuals whether in real life or in the classroom.

C. Dissemination

The Simulation Games program has long served as an informal clearinghouse on educational games. Only one other group in the country (Project Simile) serves a similar function. We receive communications from many investigators, and try to encourage continuing consulting services with those who write us.

This year the program initiated a formal dissemination activity, the publication of Simulation and Games, an interdisciplinary social science quarterly devoted to theory, research, and design of simulation. The first issue appeared in January, 1970. The journal publishes general articles on simulation, a listing of newly-available simulations, book reviews, simulation reviews, and communications.

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RESUMES

James S. Coleman (See Social Accounts resumes.)

Keith J. Edwards (Ed.D., 1969, New Mexico State University) is Research Associate at Johns Hopkins. He comes to the games project from Rutgers University where he was a Research Assistant Professor in the Graduate School of Education. He is primarily interested in instructional applications of gaming and simulations, and also a special interest in statistics and research methodology.

Michael Inbar (Ph.D., 1966, Johns Hopkins) is Visiting Assistant Professor of Social Relations at Johns Hopkins. Dr. Inbar has designed one published simulation game, Disaster, and authored numerous articles on simulation as an educational tool. He is Editor in Chief of Simulation and Games. His primary research interests include the development of a typology of games and the effects of natural games upon the development of individual social skills and attitudes.

Steven Kidder (Ph.D., 1970, SUNY at Albany) Research Associate at Johns Hopkins. He is working on the games project, primarily interested in children's games-and-socialization and games as vehicles for social research.

Samuel Livingston (M. Ed., 1964, Pittsburgh) is a doctoral candidate in educational psychology at Johns Hopkins. He has prepared several reports on the role of games upon topic motivation and the acquisition and retention of information. His special concern is with the measurement problems in educational evaluation research. He has also developed one simulation game, Trade and Develop.

Clarice S. Stoll (Ph.D., 1967, Rutgers) is Associate Research Scientist in Social Relations at Johns Hopkins. She has been with the games project for three years, focusing her interests upon the effects of games in socialization and as tools for social research. She is Managing Editor of Simulation and Games.

CAREERS AND CURRICULA

I. STAFF:

John L. Holland, Program Director
Peter H. Rossi, Program Consultant
Mary C. Viernstein, Research Assistant

II. GOALS:

The objectives of this program are: (1) to revise a theory of vocational development to account for how students select their field of training and occupation, how schools and colleges affect these decisions, and how careers progress and decline, and (2) to provide practical interventions or devices for improving the occupational decisions and career development of elementary, high school, and college students. Because the theory is largely responsible for the products of this program, we will continue to give the theoretical work a heavy emphasis.

III. RESULTS: 1969-1970

Earlier theoretical and empirical work (Holland, 1965; 1966a, 1966b; Holland et al., 1969) yielded several useful products in 1970; an occupational classification system, and a self-administered vocational guidance system.

A Psychological Classification of Occupations (Holland, Viernstein, Gottfredson, Nafziger, and Cutts, 1970) is a practical scientific tool. The classification includes 432 occupations which encompass about 95% of the labor force. Each of its six main clusters (Realistic, Investigative, Artistic, Social,

Enterprising, Conventional) includes five to sixteen subclasses. In addition, each subclass is arranged according to the level of general educational development required to perform an occupation.

The classification has many potential applications in vocational guidance, vocational education, personnel work, and in theoretical and occupational research.

In vocational guidance, the classification can be used to organize information about occupations, to interpret interest inventories, to clarify the divergent occupational choices of persons in conflict, and to interpret the meanings in a person's work history. In rehabilitation work, the classification may be especially helpful in locating psychologically similar jobs for persons with disabilities who must find jobs with different physical demands.

In vocational education, the classification implies a way to create curricular clusters which would demand similar competencies and interests. The classification implies similar clusterings for reorganizing two and four-year colleges. Using the classification, Whitney and Holland (in press) have proposed a new curriculum for colleges.

The possible uses of the classification in personnel work are numerous. The applications cited for vocational guidance apply also to personnel work. In addition, the classification suggests ways to form criterion groups for selection, tenure, and job satisfaction studies. Likewise, the classification could be used to focus on particular occupations because

of their high recruiting potential and for facilitating the transfer of employees from one class of jobs to another. In this connection, the classification provides a theoretical system for assessing the effects of national manpower training and recruiting policies, some of which appear inconsistent with one another.

In research, the classification has a wide range of uses. Perhaps its most immediate pragmatic value will be to link Holland's theory of personality types and environmental models to occupational data including occupational aspirations, the VPI scales, and work histories. Without a comprehensive classification, his theoretical work could have only limited application. In addition to this special use, the classification can be used to interpret or reinterpret occupational data in the census, or other surveys. Because the classification has a theory with some positive empirical testing, any occupational data which can be reorganized by the classification has the theory available for interpretation. In mobility studies, the classification can be used to study work histories in two dimensions (kinds of work by level of talent required).

The Self-Directed Search for Educational and Vocational Planning

This self-administered system grows directly from earlier theoretical work and the classification described above.

The Self-Directed Search (SDS) is a self-administered, self-scored, and self-interpreted vocational counseling tool. The SDS includes two booklets. In one the SDS, a person easily fills out the occupations book-

Set and obtains a three-letter occupational code. He then uses the three-letter code to search for suitable occupations in the occupational classification booklet. Most people complete the SDS in 30 to 50 minutes. In short, the SDS provides a vocational counseling experience by simulating what good counselors do.

The SDS has two main purposes: to provide a vocational counseling experience for people who do not have access to professional counselors, or who cannot afford their services, and to multiply the number of people a counselor can serve. For example, a counselor can restrict his services to those people that this inexpensive service fails to help and act on the messages of the SDS systematic distribution, the combination with other kinds of vocational service, and its emphasis.

The SDS has the following desirable characteristics:

Immediacy. Anyone can use the SDS whenever he wants to, and he does so with privacy.

Self-direction. Because the SDS is always controlled by the user, people enjoy the experience, and the learning experiences seemed to abound by occasional and unavoidable conflicts with test administrators, counselors, or counselors.

Comprehensive. The SDS is the first device to provide a relatively complete vocational counseling experience. In the SDS, the personal assessment, the occupational search, and the translation of the assessment into occupational terms are contained in a single pair of booklets along with some ideas for some "next steps" for continuing an exploring a person's occupational search.

Independence. Users are not dependent upon the vagaries of scoring services, computers, and appointment restrictions.

Scientific Base. The SDS is an outgrowth of a theory of vocational choice (Holland, 1959, 1966b), which has undergone extensive investigation. The entire SDS has been oriented by that theory of personality types and environmental models. The personal assessment and the occupational classification use the six major concepts in the theory.

Breadth of Use. The language in the SDS is at a low reading level, and the scoring, graphing, and computational tasks are at the same level. (A bright nine year old filled out the SDS without supervision.) The SDS's appropriate use is with people aged 15 to 50.

IV. WORK IN PROGRESS

The principal investigator is rewriting a theory of personality and vocational behavior, a revision of the book, The Psychology of Vocational Behavior (Ginn, 1966).

Using the data in the Social Accounts Program, the occupational classification from this program is being used to understand the careers of blacks and whites, and to examine mobility processes in some new dimensions.

Beginning in October, 1970 the Self-Directed Search will be used in the local school system to accelerate the guidance process and to

evaluate the effectiveness of this new approach. In the Baltimore City schools, a special attempt will be made to assess the value of this guidance system with students in ghetto schools. Currently, the SDS is being tested in a large state university.

Finally, the potential applications of the theory of vocational behavior to some problems of vocational education will be made explicit: development of curriculum clusters, choice of training, reduction of drop-outs, increasing motivation. The application of the SDS to these problems will also be examined.

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RESUMES

John L. Holland (Ph.D., 1952, University of Minnesota) is Professor of Social Relations at Johns Hopkins. Dr. Holland is the author of numerous scales, inventories, and vocational guidance devices. His primary interests include vocational behavior, human talent, and effects of education.

Peter H. Rossi (See Social Accounts resumes).

LANGUAGE AND COMMUNICATION

I. STAFF:

Catherine Garvey, Program Director
Edmund Anderson, Program Associate
Thelma Baldwin, Program Associate
Ellen Dickstein, Research Assistant
Leslie Schnuelle, Research Assistant
Marian Hoover, Secretary-Research Assistant

II. GOALS:

The original goal of the program was to improve the teaching of oral Standard English to children who are speakers of a non-standard variety of English. Special consideration has been given to the function of Standard English as a social dialect and as the means of classroom instruction. The focus of the program has shifted during FY 1970 from development of instructional materials for teaching Standard English grammar to research on language form and on the communication process; that is, language use. The present goals of the program are to identify the language and interaction skills of children which are required for successful performance in academic and social communication situations.

III. RESULTS:

A. Studies of the form of children's speech. These studies describing the grammatical form of children's speech are a necessary basis for the development work on instructional materials. A description of the non-standard varieties of English and a comparison with more standard varieties has been investigated:

(1) In the context of a sentence repetition task (Garvey and McFarlane, 1968). Results of the sentence repetition task were examined in relationship to measures of reading achievement and IQ (Garvey and McFarlane, 1970).

(2) In the context of interviews and free conversation situations (Anderson, 1970, based partly on the corpus collected by McFarlane, 1967). This grammatical overview describes and illustrates a number of features of Baltimore Non-standard Negro speech.

(3) In the context of three two-person communication tasks (Garvey and Dickstein, in preparation). A single dimension of standard-non-standard usage is examined across four groups of children to assess the influence of subject characteristics and task on the form of a linguistic construction.

B. Studies of the effectiveness of instructional procedures for language learning. (Guthrie and Baldwin, 1969, 1970; Guthrie, 1969.) These studies investigated the comparative effectiveness of several combinations of techniques for teaching a grammatical concept. The findings are relevant to the design of either classroom-based or individualized oral language training.

C. Development and evaluation of a self-instructional course in standard English: a feasibility study of six introductory lessons. (Garvey and Baldwin, 1969.)

This work was based on an instructional technology for programmed language teaching developed earlier (Garvey, Johansen, Noblitt, 1967; Garvey, 1968). The results of the feasibility study indicated that

the procedures were effective in producing changes in specific grammatical characteristics of the speech of inner-city Negro fifth graders. Continued development of the instructional system, however, proved to be beyond the financial and support capabilities of the Center. Attempts were made to enlist the assistance of the Research for Better Schools, Inc. in the development of materials, but the required degree and length of commitment to this project could not be provided. A second, major factor in the decision to suspend the developmental work was the fate of the responsive teaching device, a vital part of this self-instructional system. The developers of this device were unable to furnish the promised reliable commercial version at a reasonable cost. Extensive search and consultation failed to provide any functionally equivalent device to replace the one used in the feasibility study. Although the development work was then terminated (September, 1969) for the above reasons, the feasibility study should be considered a positive contribution to on-going work in materials design and development at other locations. Reception of the report has indicated that a number of features of the self-instructional program (such as the statement and evaluation of lesson objectives, the adaptation of instructional techniques to specific lesson content, and the use of a bi-dialectal language model) can be adopted by other development projects.

IV. WORK IN PROGRESS: Studies of Children's Communication

The study of subcultural differences in children's communication styles has important implications for education and could be expected

to relate to both academic performance and social behavior. Knowledge about differences in child-adult communication skills can contribute to better design of instruction, both by defining instructional objectives and suggesting effective classroom procedures. A series of studies have been undertaken as a first step towards: (1) identifying some basic communication skills, and (2) describing stylistic variation in child and adult communications. A first study (Baldwin, McFarlane, and Garvey, 1970) reported on communication accuracy and efficiency as related to several status characteristics of forty-eight dyads of fifth grade children. Since late 1969 the approach has been broadened to include observations on adults as well as children, on two additional communication tasks, and on the internal linguistic structure of the communication process. Three reports are now in preparation on the following five areas of the project's activities.

A. Definition of a type of communication for study. It was assumed that communication situations where people had to exchange information in order to solve problems and complete tasks constituted a type of communication which required a common set of communication skills. Three different two-person communication tasks were designed which exemplified the defined "convergent" communication situation, and which permitted measurement of communication accuracy and efficiency.

B. Observations of child dyads and adult dyads performing convergent communication tasks. Forty-eight Negro children and forty-eight white children, from low and middle SES levels, and twenty-four

Negro adult and twenty-four white adult pre-service teachers were observed in dyads performing the three tasks. The communications have been transcribed and analyzed for consistent differences in accuracy and efficiency across the three tasks. The results, i.e. the consistency of accuracy, efficiency, and SES differences across the three different tasks support the assumption that there are related skills which affect performance in this type of communication situation.

C. Development of a system for describing the functions, mechanics and content of the exchanges observed in the communications. A draft of a coding manual describing this system has been written and tried out. Inter-coder reliabilities have ranged from 85% to 99% among three coders.

D. Description of structural properties of convergent communication. Adult data and adult-child comparisons will be analyzed on a number of structural and process dimensions. These will include:

(1) Quantitative and qualitative assessment of how the task is organized by the participants, including measurements of how the task is distributed between the functional roles of the participants.

(2) Measures of how participants encode the principle type of communication behaviors, which are search, presentation, and evaluation of information.

(3) Identification of recurrent behaviors characteristic of child and of adult communications which appear to relate to assimilation of information, such as failure to acknowledge or integrate new information.

E. Identification of communication skills

An analysis of the requirements for solution of the convergent communication tasks has suggested several behaviors which should be related to successful communication performance: (1) communication of critical information necessary for accurate task solution, (2) orientation to other's point of view before task is begun, (3) dominance of communication by the dyad member holding the greater amount of information about the task and solution, (4) variations in the use of feedback throughout task and solution.

Indications of these skills are readily available from molar analysis of the communication transcripts. More refined indicators will be possible upon completion of the coding system (#3) which offers a finer analysis of the function and content of each exchange. Preliminary work suggests these behaviors help to account for differences between adult dyads and child dyads and between accurate and inaccurate child dyads. This approach to the identification of communication skills differs from previous investigations in that communication behaviors, not cognitive characteristics of the participants, are used to account for communication success. Hopefully this approach will be more profitable in yeilding behavioral descriptions of communication skills which might be more readily used as educational objectives.

V. FUTURE PLANS

The planned termination of this program (January, 1971), a decision resulting primarily from the inability to complete the developmental

work on instructional materials, will preclude further research into the determinants of communication accuracy and efficiency and into sub-cultural differences in communication styles.

From the present exploratory work, two potentially important research instruments have evolved. First, three tasks have been designed and studied as instruments for research on the dyadic communication process, and these tasks have been shown to be reliable instruments for the study of child and adult communications. Second, a system of structural analysis of the process of problem-solving communication has been developed and tested. The system of analysis and the coding manual have been used to describe important differences between sub-cultural groups as they work on a variety of communication tasks.

The problem-solving situations and the analytic system for examining the way in which information is sought, presented, and received seems rich in possibilities for exploring questions about the way information is exchanged and processed for educational purposes; e.g., (1) how is a teacher's information-giving strategy affected by changes in the social characteristics of students or the number of students in the communication situation? (2) how do variations in the tasks affect the structure of communication and the cognitive operations employed? (3) what are the characteristics of accurate and inaccurate teacher-student communications? Unfortunately, however, the termination of the program precludes further analyses of our collected data or the undertaking of new investigations necessary to answer these or related questions.

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Baldwin, Thelma L.; Garvey, Catherine. Communication skills observed in three problem solving communication tasks. (Paper submitted to the American Educational Research Association. 1971 Annual Meeting.)

RESUMES

Catherine Garvey (Ph.D., 1958, University of Texas) is Lecturer and Research Associate in the Department of Social Relations. Dr. Garvey developed a self-instructional French program at the Center for Applied Linguistics. At this Center she began the development of a standard-English program using a similar instructional approach. She has published articles and technical reports on the use of programmed instruction in second language learning, the language of inner-city Negro children, and the structure of communication.

Thelma Baldwin (Ph.D., 1967, University of Wisconsin) is Research Associate in the Department of Social Relations. She has been here two years following one year of post-doctoral work at the Educational Testing Service. Her work has included research in second-language learning problems, evaluation of programmed instruction and the characteristics of accurate communication.

Administration and Support Services

ADMINISTRATION

Much of the effort of the staff in this program is devoted to program planning and coordination, and to administrative tasks for USOE such as budget preparation and updating the information reporting system. The staff is also responsible for all accounting and personnel services connected with the Center, communication with outside agencies, coordination among R and D programs of the Center, and preparation and distribution of all R and D reports emanating from the Center.

SUPPORT SERVICES

This program provides two essential types of services to all substantive programs and projects. These services are discharged by two spearate units: the Computer and Data Processing Unit and the Experimental Design and Statistical Analysis Unit.

The Center IBM 1401 Computer and ancillary equipment are located in the Computer and Data Processing Unit, which is responsible for providing services such as programming and tabulation and processing of data from experiments and field surveys. Mrs. Nancy Karweit directs this unit.

Dr. Julian Stanley directs the Experimental Design and Statistical Analysis Unit which conducts three types of activities:

1. During the academic year, a weekly two-hour seminar on a topic in research methodology applicable to one or more R and D programs at the Center is held for Center staff and other interested persons.

2. Aid is given to Center researchers on their problems of experimental design, statistical analysis, measurement, and data-processing including research on such topics when needed. The staff published the results of some of this methodological research in Center Reports and professional journals. (Center Report No. 69 and No. 73)

3. Periodically, an informal newsletter is issued calling attention to recent developments in research methodology and measurement.

Appendices

THE R & D CENTERS PROGRAM

This Center is one of a system of nine Educational Research and Development Centers funded under the Cooperative Research Act (as amended by Title IV of the Elementary and Secondary Education Act of 1965). The program was organized as one response to an increased national awareness of the importance of finding solutions to critical educational problems.

More specifically, the R & D Centers program was devised to fill a unique role in relation to other forms of educational research and development, by providing a prime avenue for (a) bringing together a critical mass of interdisciplinary talent and other research resources from the behavioral sciences and other disciplines, (b) focusing on a crucial educational problem area by means of a long-range coordinated attack on large-scale problems, and (c) moving promising innovations through development toward an impact on actual educational practice. Although R & D Centers generally do not carry the innovative process through to final implementation themselves, they <u>are</u> charged with the responsibility for projecting a further route toward that goal by enlisting the interest of a regional educational laboratory, commercial developer, State or local agency, coordinating body, or other appropriate institution.

Although these centers have had an existence of only three to five years in which to build up their program, they have already recorded some significant steps toward the achievement hoped for,

and this Annual Report describes some of the accomplishments of one of these centers. The list of all eight R & D Centers is as follows:

Learning Research and Development Center, University of Pittsburgh (1964)

Center for the Advanced Study of Educational Administration, University of Oregon (1964)

Wisconsin Research and Development Center for Cognitive Learning, The University of Wisconsin (1964)

Center for Social Organization of Schools, The Johns Hopkins University (1966)

Research and Development Center for Teacher Education, University of Texas at Austin (1965)

Stanford Center for Research and Development in Teaching, Stanford University (1965)

Center for Research and Development in Higher Education, University of California at Berkeley (1965)

Center for the Study of Evaluation, University of California at Los Angeles (1966)

Also funded through this same program is the National Laboratory on Early Childhood Education, which consists of a group of seven university-based centers whose research and development efforts are coordinated through the Central Midwestern Regional Education Laboratory (CEMREL), St. Ann, Missouri.

* * * * * * *

The Educational Research and Development Centers are part of a larger set of institutions which contribute in specialized ways to the improvement of educational practice. These include:

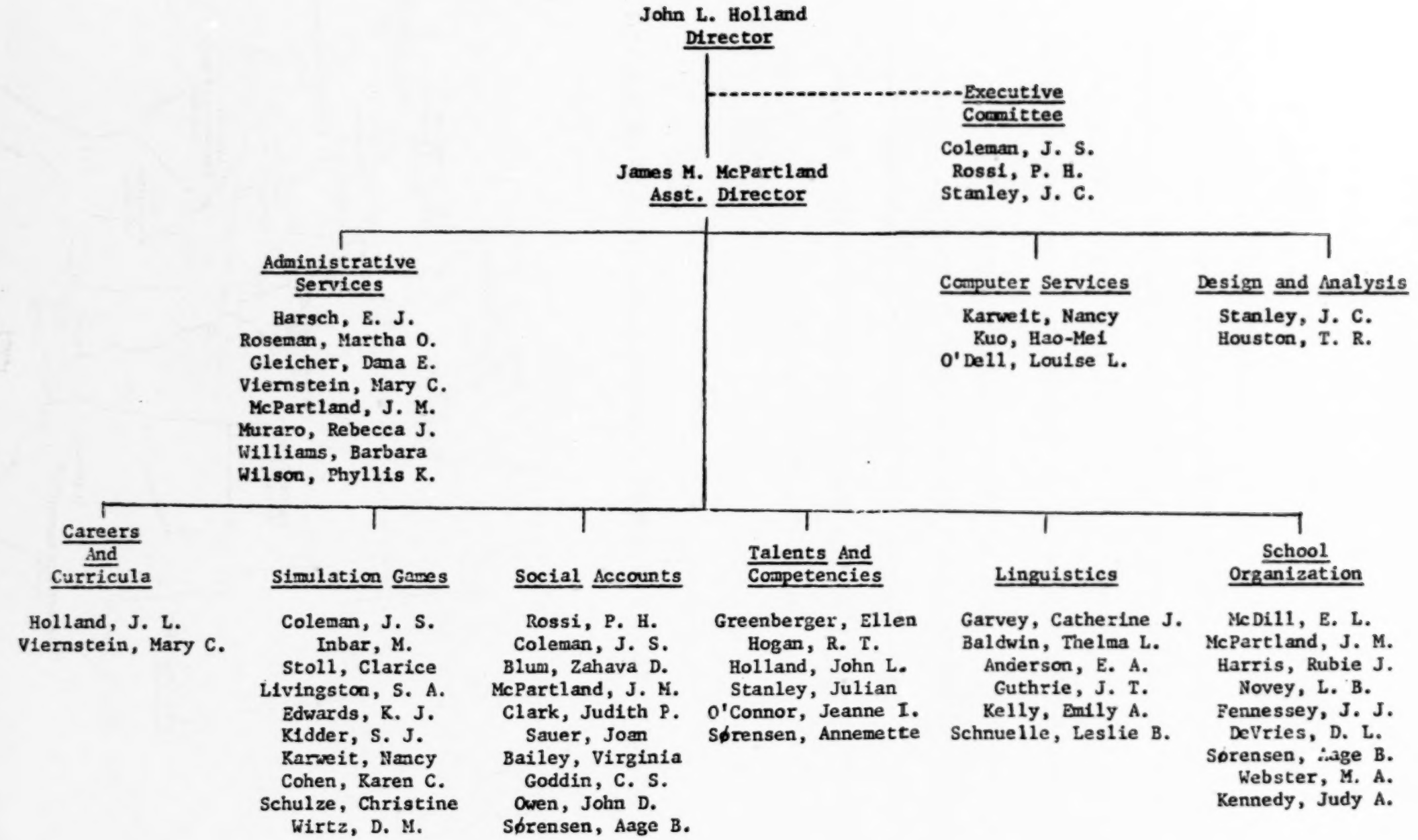
o The two Educational Policy Research Centers, charged with providing a continuing examination of future educational needs and resources for the years 1980-2000.

o The two Vocational Education Research Centers, established under the provision of the Vocation Education Act of 1963.

o The system of 15 Regional Educational Laboratories, each of which concentrates on specific problems concerned with the development, demonstration, and dissemination of educational alternatives, materials, and practices for the schools; some of these have close relationships with the Educational Research and Development Centers.

o The Educational Resources Information Center (ERIC), a nationwide network for acquiring, selecting, abstracting, indexing, storing, retrieving, and disseminating information about educational research and resources, including 19 ERIC Clearinghouses each providing coverage of a particular educational area.

REGIONAL LABORATORIES AND R & D CENTERS CURRENTLY IN OPERATION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PROGRAM AND PROJECT REGISTER FY 70

The Johns Hopkins R & D Center

6-1610
BR No.

Code Number	Date Initiated	Title	Investigator (s)
01		SIMULATION GAMES.....	Michael Inbar James S. Coleman
0104	Sept. 1, 1967	Workshops for School Personnel.....	Staff
0105	Sept. 1, 1967	Games Experience as a Basic Learning Variable	Michael Inbar Clarice Stoll
0109	Sept. 1, 1968	Evaluation of Selected Games.....	Keith Edwards Steven Kidder Samuel Livingston
0112	Feb. 1, 1970	Games and the Organization of the Classroom.....	Clarice Stoll Michael Inbar James Coleman
0113	Sept. 1, 1968	The Computer as a Responsive Educational Environment.....	Nancy Karweit
02		EDUCATION AND SOCIAL CHANGE: THE DEVELOPMENT OF A SYSTEM OF SOCIAL ACCOUNTS.....	Peter Rossi James Coleman Zahava Blum
0201	Sept. 1, 1967	Russell Sage Seminar on Social Accounts.....	Staff
0203	Sept. 1, 1968	Studies of Intergenerational Mobility on Household Decision-Making.....	Zahava Blum
0204	Sept. 1, 1968	Study of Community Resources.....	Peter Rossi
0205	Sept. 1, 1968	Survey of Intragenerational Changes of Negroes and whites.....	Zahava Blum James Coleman James McPartland Peter Rossi

0207	Feb. 1, 1970	Individual Variation in the Rate of Return to Investments in Human Capital.....	John Owen
0208	Feb. 1, 1970	Analysis of Continuous Work-History Data.....	Aage Sørensen
03		TALENTS AND COMPETENCIES.....	Ellen Greenberger Robert Hogan
0321	Jan. 1, 1970	Elementary and Secondary Studies.....	Ellen Greenberger
0322	Jan. 1, 1970	College and Adult Studies.....	Robert Hogan John Holland Julian Stanley
04		A PROGRAM FOR THE STUDY OF STANDARD LANGUAGE ACQUISITION IN EDUCATIONALLY DISADVANTAGED CHILDREN.....	Catherine Garvey
0401	Sept. 1, 1967	Linguistic Research.....	Edmund Anderson
0403	Sept. 1, 1968	Design and Development of Self Instructional Program in Standard English...	Catherine Garvey Thelma Baldwin
0404	Sept. 1, 1968	Programming Research.....	Thelma Baldwin John Guthrie
0406	May 1, 1969	Development of a Communication Task to be Used in the Study of Socio-Linguistic Factors in Information Exchange.....	Thelma Baldwin
06		SCHOOL ORGANIZATION.....	James McPartland Edward McDill
0601	Sept. 1, 1970	Studies of the Social Climates of Schools.....	Edward McDill
0602 (formerly 1208)	Feb. 1, 1969	Classroom application of Research in Expectation Theory.....	Murray Webster Doris Entwisle
0603 (formerly 1209)	Sept. 1, 1968	Student Participation in the Decision-Making Process of Secondary Schools..	James McPartland Edward McDill

0604	Sept, 1970	Reward Systems in the Classroom.....	James Fennessey
0605	Sept, 1970	The Grouping and Differentiation of Students.....	David DeVries
0606	Sept, 1968	Studies in School Desegregation.....	James McPartland
07		CAREERS AND CURRICULA	John Holland
0701	Jan. 1970	Development of an Occupational Classification.....	John Holland

PUBLICATION LIST

CENTER FOR SOCIAL ORGANIZATION OF SCHOOLS
THE JOHNS HOPKINS UNIVERSITY
BALTIMORE, MARYLAND 21218

Publication No.	Date	Title	Author
1	Sept. 1967	Race Relations and Social Change (ED. 013 493)	James S. Coleman
2	Nov. 1967	The Relative Influence of Desegregation and Classroom Desegregation on the Academic Achievement of Ninth Grade Negro Students (ED. 014 341)	James McPartland
* 3	June 1967	School Desegregation in Baltimore (ED. 031 168)	Dollie R. Walker Arthur L. Stinchcombe Mary S. McDill
4	May 1967	An Exploratory Study of Non-English Speaking Homes and Academic Performance (ED. 011 163)	James Fennessey
5	March 1967	Subcultural Differences in Children's Language Development (ED. 011 612)	Doris R. Entwisle
6	March 1967	Developmental Sociolinguistics: Inner City Children (ED. 011 611)	Doris R. Entwisle
7	Oct. 1967	Organization of Schools to Provide Academic Aid and Therapeutic Counseling to Disadvantaged Children (ED. 013 459)	Martha O. Roseman
8	Nov. 1967	Simulation Games and Social Theory (ED. 017 237)	James S. Coleman
* 9	Nov. 1967	Innovations in the Structure of Education (ED. 015 159)	James S. Coleman

*Out of print; available from Educational Resources Information Center (ERIC)

Publication No.	Date	Title	Author
10	Dec. 1967	Simulation Games and Control Beliefs (ED. 016 736)	Sarane S. Boocock
11	Nov. 1967	The Concept of Equality of Educational Opportunity (ED. 015 157)	James S. Coleman
* 12	Nov. 1967	The Struggle for Control of Education (ED. 015 158)	James S. Coleman
* 13	Dec. 1967	Equality of Educational Opportunity, Reconsidered (ED. 015 893)	James S. Coleman
14	Jan. 1968	Toward A Discipline of Curriculum Theory (ED. 018 851)	John S. Mann
* 15	March 1968	Class, Status, and Poverty (ED. 020 289)	Peter H. Rossi
16	March 1968	A Preliminary Study of Standard Speech Patterns in the Baltimore City Public Schools (ED. 019 265)	Catherine Garvey Paul McFarlane
* 17	March 1968	Social Class Research and Images of the Poor: A Bibliographic Review (ED. 020 294)	Zahava D. Blum Peter H. Rossi
18	March 1968	Responsibility of Schools in the Provision of Equal Educational Opportunity	James S. Coleman
* 19	May 1968	Differences in the Language of Negro and White Grade-School Children (ED. 019 676)	Doris R. Entwisle Ellen Greenberger
20	July 1968	Need Achievement, Curiosity and Sense of Control: Pilot Study for a Large-Scale Investigation (ED. 024 084)	Ellen Greenberger
21	June 1968	The Segregated Student in Desegregated Schools: Sources of Influences on Negro Secondary Students (ED. 021 944)	James McPartland

Publication No.	Date	Title	Author
* 22	May 1968	Games as Vehicles for Social Theory	James S. Coleman
* 23	July 1968	Player Characteristics and Strategy in a Parent-Child Simulation Game	Clarice S. Stoll
* 24	Aug. 1968	An Economic Analysis of College Scholarship Policy (ED. 025 218)	John D. Owen
* 25	Aug. 1968	The Evaluation of Equality of Educational Opportunity (ED. 026 721)	James S. Coleman
* 26	Sept. 1968	Educational Opportunity, Democratic Theory, and the Economics of Educational Subsidy (ED. 026 722)	John D. Owen
27	Oct. 1968	Some Hypothetical Experiments on Variations in School Components and Selected Educational Outcomes (ED. 030 199)	James McPartland J. Timothy Sprehe
* 28	April 1969	Educational Climates of High School: Their Effects and Sources (ED. 030 205)	Edward L. McDill Leo C. Rigsby Edmund D. Meyers, Jr.
29	Dec. 1968	Autotelic Behavior in Socialization (ED. 030 205)	Michael Inbar
30	Dec. 1968	Game Experience and Socialization: An Exploratory Study of Sex Differences (ED. 028 465)	Clarice S. Stoll Michael Inbar James S. Fennessey
31	Dec. 1968	Socialization and Games: An Exploratory Study of Race Differences	Clarice S. Stoll Michael Inbar James S. Fennessey
32	April 1969	Development of a Curiosity Scale (ED. 030 154)	Robert Hogan Ellen Greenberger

Publication No.	Date	Title	Author
35	Nov. 1968	Content Analysis of Stories for Curiosity Imagery: A Manual (ED. 028 486)	Ellen Greengerger Jeanne O'Connor Annemette Sørensen
36	Dec. 1968	A Scoring Guide for the Greenberger-Entwisle Need Achievement Pictures (ED. 028 462)	Ellen Greenberger John Kervin
37	Nov. 1968	The Faculty Peers	James S. Fennessey
38	March 1969	User's Handbook for Computation Center	Nancy Karweit
39	Feb. 1969	Pilot Studies of Role Behaviors in A Parent-Child Simulation Game (ED. 027 593)	Paul T. McFarlane
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